

### **ABSTRACT**

A thin and flexible radio frequency (RF) antenna tag or label is disclosed which contains an RF circuit connected to an antenna which is created by demetallizing the area around the antenna pattern on a thin, metallized substrate such as a film or paper web. Antenna(s) may be formed on one or both sides of the substrate and can contain printed, holographic, optical variable device, diffractive, dot matrix, computer-generated holograms or computer-generated optical images. The demetallized RF antenna on the substrate can optionally further be transferred to a second substrate or web by means of a cold foil stamping process. The tag or label is thin and flexible, enabling a wide range of applications including RF tagging of anti-theft devices, product packaging of all types, credit cards, passports, admission tickets, stamps, vehicles, badges, fare cards, roadway tolls, customs and immigration checkpoints identification, and animal identification/tracking devices.

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